Claims 1-44 stand rejected under 35 U.S.C. § 102 over U.S. Patent No. 5,902,997 to Kropp (Kropp) or under 35 U.S.C. § 103 over Kropp in view of another reference. Applicants have reviewed Kropp and have found that the mounting method of Kropp is substantially different from the mounting method of the present invention.

In Kropp's method, complementarily engaging structures are provided on a lens component and an optoelectric component. When the engaging structures contact one another, the two components are aligned according to Kropp's requirements for an aligned assembly. The purpose of Kropp's invention is to reduce reliance on uncertain manual adjustments in the relative position between the lens component and the optical component during the assembly process prior to the two components being secured together. Kropp therefor provides a system wherein rigid structural members of an optic component and an optoelectric component are benched against one another during the assembly process. That Kropp's system requires benching between rigid structural member of an optics component and an optoelectronic component is made clear from the Kropp disclosure. In Kropp's assembly method as shown with reference to Figs. 3 and 4, the lens component and the optoelectronic component are benched against one another in the x, y, and z directions prior to securing of the components. Kropp states with reference to the embodiment of Figs. 3 and 4 "adjustment can be dispensed with entirely" (Kropp, column 5, lines 51-52). In Kropp's assembly method as described with reference to Figs. 1 and 2, the lens component and the optoelectronic component are benched against one another in the z direction as seen from Figs. 1 and 2, and in the y direction prior to securing the two components together. "The lens carrier 10 is put in place in such a way that the highest points 20, and 21 of the protuberances 18, and 19 rest on the component 2, and the lens carrier 10 rests with its lower surface 26 smoothly on the surface of the base plate," (Kropp, column 5, lines 1-5).

By contrast, applicants' system accommodates multidirectional manual adjustment of an optical subassembly relative to an image sensor assembly. Applicants, according to their claimed invention as set forth in several of the claims, set out to avoid the uncertainty which results from manufacturing tolerances as are inherent in systems such as the one proposed by Kropp. In the background, the applicants state: "characteristics of both optical and imaging elements tend to vary from element to element among like styled components...Because proper operation of many types of optical readers requires alignment between optical and imaging elements, these manufacturing tolerances present a challenge to the manufacture of

optical reading devices."

In order to avoid alignment problems resulting from manufacturing tolerances, applicants method in one embodiment does not require any and preferably avoids substantial benching between a rigid structural member of an image sensor subassembly and a rigid component of an optical subassembly in at least the x and y directions. Applicants at page 19 state that during the alignment process, in one embodiment, the optical subassembly can be moved in an x direction, a y direction, and rotationally relative the image sensor subassembly during the course of aligning an optical subassembly relative to an image sensor subassembly. For such free movement between the two assemblies, there clearly cannot be benching between rigid members of the subassemblies during the alignment process. It should be noted that applicants' process could be practiced with insubstantial benching between members (such as an incidental, a ephemeral, or a resilient contacting between members).

Applicants have amended their claims to clarify their invention. Distinctions between applicants' claims and Kropp are now apparent in view of these clarifications. Claim 1 recites that the soldering step is to take place in the absence of there being benching between an image sensor subassembly and an optical subassembly in either the x or y directions. Claim 13 recites a similar limitation. New independent claim 46 also recites an aspect of the non-substantial benching feature. Kropp teaches away from all of the above claims because Kropp discloses an alignment system where there must be benching contact between a lens component and an optoelectronic component in at least the z and y directions for the goals of the alignment system to be satisfied.

Referring now to claim 26, claim 26 recites an image sensor subassembly having a solderable surface in a configuration selected from the group consisting of a hole, a pin, or a threaded screw. Kropp does not suggest any one of these solderable surface configurations. The element 52 of Kropp are not "holes" as is argued by the examiner. Elements 52 are annual markings which are delimited by surface 49 which prevents markings 52 from constituting holes. If annual markings were holes as claimed by the applicants, then the markings would accommodate z-direction movement of a member relative to the hole. Kropp also does not suggest a pin for a solderable surface configuration, as applicants claim. The examiner argues that applicants recited "pins" are suggested by Kropp's lenticular protuberances 18, 19, and 40. The major function of Kropp's lenticular protuberances e.g. 18 is to precisely space member 2 relative to member 10 as best seen in Fig. 2. Lenticular

protuberances are well adapted to provide such a precise spacing function. Lenticular protuberances e.g. 18 are characterized in that they have a wide base end having a diameter proximate the height dimension of the lenticle. This makes the lenticular protuberances substantially impervious to bending during the alignment process. Bending of the lenticle could destroy the capacity of the lenticle to provide a precise spacing function. Applicants' claimed pins, by contrast, are poorly equipped to provide a spacing function. Applicants' pins are poorly equipped to provide a precise spacing function since, insofar that they have a substantially narrow diameter, they are susceptible to bending. A bended pin will not provide a precise spacing function as is required by the Kropp system. Therefore, Kropp teaches away from applicants' claimed pins. Applicants' recited threaded screw configuration for a solderable surface is also not suggested by Kropp. The height constituted by a threaded screw changes substantially with each slight turn of a screw head. Because threaded screws are so poorly adapted to provide a precise spacing function the skilled artisan taking the teachings of Kropp would not consider using a threaded screw to perform the function required of Kropp's lenticular protuberances e.g. 18.

Referring to remaining independent claims, claim 58 recites an imaging device having a solder receiving interface defined between a printed circuit board on which an image sensor is mounted and an optical subassembly. In Kropp, solder receiving interfaces are defined at a surface of a photodetector array 40. This teaching of Kropp can be taken to be suggestive of mounting an image sensor on a printed circuit board, and defining a solder receiving interface between the circuit board and an optical subassembly as applicants' claim.

Claim 66 recites an imaging device having an optical subassembly comprising a single optical receive optics. Kropp's optical receive system, by contrast, includes a plurality of optical receive axis. Because the considerations involved in aligning an optical component with an electro-optical component in an optoelectronic system having multiple received optical axis as shown by Kropp are markedly different from those involved in making a single receive axis optoelectronic imaging system as recited by the applicants in claim 66, the skilled artisan would not be motivated to consider the teachings of Kropp in making a device having single receive optic axis as recite in claim 66.

Claim 73 is similar to claim 58 except the term "printed circuit board" is replaced with the term "substantially rigid planar member." Further, claim 73 recites an optical reading device having a housing, not an imaging device. Claim 73 is believed to be allowable

at least for the reasons given per claim 58.

The above mentioned independent claims are believed to be allowable for the reasons stated. In addition, all of the dependent claims are believed to be allowable at least for the reason that they depend on an allowable base claims.

Accordingly, in view of the above amendments and remarks, Applicants believe all of the claims of the present application to be in condition for allowance and respectfully requests reconsideration and passage to allowance of the application.

Attached hereto is a marked-up version of the changes made to the specification and claims by the current amendment. The attached page is captioned **"Version with markings to show changes made."**

If the Examiner believes that contact with Applicants' attorney would be advantageous toward the disposition of this case, the Examiner is herein requested to call Applicants' attorney at the phone number noted below.

The Commissioner is hereby authorized to charge any additional fees associated with this communication or credit any overpayment to deposit Account No. 50-0289. A duplicate copy of this sheet is enclosed.

Respectfully submitted,

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"VERSION WITH MARKINGS TO SHOW CHANGES MADE."

In the Claims:

1. (Amended) A method for mounting an optical subassembly of an optical reading device to an image sensor subassembly of an optical reading device, said method comprising the steps of:

moving said optical subassembly and said image sensor subassembl[ies]y in proximity with one another; and

without a substantially rigid component part of said image sensor assembly being substantially benched in either of an x or y direction against a substantially rigid component part of said optical subassembly, soldering said optical subassembly and image sensor subassembl[ies]y together using a solder material.

13. (Amended) A method for mounting an optical subassembly to an image sensor subassembly, said method comprising the steps of:

forming at least one solderable surface on at least one of said optical and image sensor subassemblies;

moving said optical subassembly in proximity with said image sensor subassembly to define an interface delimited by said at least one solderable surface of said optical subassembly or said image sensor subassembly; and

soldering said optical subassembly and said image sensor subassembly together at said interface[.], wherein said optical subassembly and said image sensor subassembly are substantially configured so that said image sensor subassembly and said optical subassembly are not benched against one another either of an x or y direction prior to said soldering step.

26. (Amended) An image sensor subassembly comprising:

a substantially rigid member;

an image sensor chip disposed on said substantially rigid member; and

a solderable surface formed on said substantially rigid member[.], said solderable surface being of a configuration selected from the group consisting of a hole, pin, or threaded screw.

32. (Amended) An optical subassembly comprising:

a substantially rigid member;

an optical element disposed on said substantially rigid member; and

a solderable surface formed on said substantially rigid member[.], said solderable surface being of a configuration selected from the group consisting of a hole, pin, or threaded screw.